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The essence of this invention is 4 components.

What is CLAIMED is:

- 1- The invention, Figure 1.
- 2- The mattress support (3) in Figure 1. This is shaped in the form of the arch of the foot and is continuous from toe to heel. The mattress may vary in thickness from  $\frac{1}{4}$  inch to  $\frac{3}{4}$  inch, depending upon the type of shoe. The mattress consists of 2 to 5 layers, (13) in Figure 3. The layers are affixed together with adhesive at their corresponding edges. Each layer is in the form of a monolayer of solid spheres, taking the form of a 'bubble pack'. The layers can be made from soft rubber, gel, nylon, soft plastic, etc. In affixing

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the layers, spaces are created between the spheres, which become distorted or partially obliterated upon compression with walking.

3- Compressible rubber cushions as (4,5) in Figure 1 and (8,9,10,11) in Figure 2. The cushions serve as the only contact points with the ground below. They are of thickness from  $\frac{1}{4}$  to 1 inch, depending on the type of shoe. The undersurface may be scored, or patterned depending on the function. The cushions are attached to the above skeleton at the key points of the talus-calcaneus and secondly at the metatarsal heads/MT joints in Figure 1 by short but sturdy bolts or interlocking male-female parts: (8,9,10) in Fig. 2

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into(32,33,34) in Fig. 5.(15,16,17) in Fig. 2 into  
(20,21,22) in Fig. 4. (18, 19) in Fig. 2 into (23,24) in  
Fig. 4.

Alternatively,contact could be with adhesive,  
staples, etc. Each cushion (Figure 6) is made of a  
durable undersurface (29) and a softer, compressible  
upper portion (28).

4- The skeletal support of the shoe, (6,7), in Figure  
1, consists of 2 separate parts, Figures 4 and 5.  
Each part is separately attached to the rubber  
cushions below (as in claim #3.) In Figure 4, the  
back portion of the skeleton is configured to  
duplicate the arch of the foot. In Figure 4,  
(25.26.27) are solid but bendable, but (30, 31) are  
empty spaces. This structure is duplicated in  
Figure 5, the toe portion of the skeleton, but with

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different dimensions.

The skeleton can be made of different materials, including plastic, composite, graphite, polyethylene, etc. The skeleton will bow downward under the force of contacting the surface, acting both as a Dynamic cushion and unidirectional spring. Each part of the skeleton, Figures 4 and 5, is surrounded by a flexible rubber casing, and affixed to the mattress, 3 in Figure 1, by various possible adhesives.

Accessory, common components of the invention include #2 in Figure 1 (a thin comfortable cloth cushion) and #1 in Figure 1 (the shoe cover.) The shoe cover is attached to the bottom surface of the skeleton.

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While in the foregoing, embodiments of the present invention have been set forth in great detail for the purpose of making a complete disclosure of the invention. It may be apparent, to those of skill in the art that numerous changes may be made in such detail without departing from the spirit and principles of the invention.

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